REMARKS

Claims 1 to 19 are in the case. Claims 1, 11, 15, and 19 were amended. The amendments made to the claims do not narrow the scope of each of the claims, nor have these amendments been made to define over the prior art. The Examiner is respectfully requested to reconsider the subject application in view of the above amendments and the following remarks.

Claim 1 was rejected under 35 U.S.C. § 112, first paragraph, for reasons set forth on page 2 of the Office action. This rejection is respectfully traversed.

In applicants' March 24 Amendment, claim 1 was amended to remove the phrase "the step of" and thereby clarify that recitations in claim 1 are not intended as "step-plus-function" languages under 35 U.S.C. §112, sixth paragraph. Therefore, claim 1 is not unduly broad as the Office Action suggested.

In view of the above, applicants submit that claim 1 is in full compliance with § 112. Accordingly, the Examiner is respectfully requested to withdraw the subject rejection.

Claims 1 - 7 and 9 -19 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,875,190 to *Law*, for reasons set forth on pages 3 to 5 of the Office action. This rejection is respectfully traversed.

Claim 1 recites a method for assigning an address to a node in a network having an arbitrary topology. The claimed invention comprises providing a first address to a first node such that the first address includes a description of a path to the first node. A plurality of output ports in the network and bits in the first address of a first node are mapped, so that a packet, directed to the first address, at a second node is forwarded via an output port of the second node, in response to a specified bit in the first address having a specified value.

Law does not disclose the network having an arbitrary topology or the self-routing address scheme as claimed. For example, *Law* does not disclose "establishing a mapping between a plurality of output ports in the network and bits in the first address" as recited in claim 1. In contrast, *Law* discloses in Fig. 4, column 5 line 66 to column 6 line 9, and column 8 lines 6 to 67 radix-r networks and the Vertex Isolation

Addressing (VIA) addressing scheme which works on only radix-r networks. The self-routing address scheme disclosed by *Law* is for the radix-2 networks only (see, column 6, line 54 to column 8, line 2). *Law's* method does not apply to distribution networks that do not have a radix-r topology or networks other than the distribution network.

Applicants respectfully disagree with the Response to Arguments in Office action.

Law's method is designed for distribution networks (see, column 5, lines 7 - 12 and column 6, lines 54 - 64), which transmit data from a set of input nodes to a set of output nodes. All nodes in a distribution network belong to only one of the following categories: input, output, or transit nodes. Transit nodes in distribution networks are neither sources nor destinations for the data, but are intermediate nodes for routing the data from the input nodes to the output nodes. Similar to our daily electrical power supply systems, the number of input nodes (i.e., power generators) is in general far smaller than that of the output nodes (e.g., homes and offices). One illustration for a distribution network is shown in Figure 4 of *Law*, in which node 26(0,0) is the input node, nodes 26(2,0), 26(2,1), 26(2,2) and 26(2,3) are the output nodes, and nodes 26(1,0) and 26(1,1) are the transit nodes.

In general, the topology of a distribution network is designed to minimize the number of transit nodes from the point of views of cost, performance, and reliability. *Law's* proposed distribution networks are based on the tree structure and are built with **identical nodes** that have only one input and r output ports, where $r \geq 2$ (Fig 2; col. 6, lines 14 – 53).

Law has demonstrated the address construction and routing for the case of r = 2 (see column 6, line 54 to column 8, line 2). *Law's* method cannot be applied to a non-tree type distribution network or other general networks, such as non-distribution networks. *Law* disclosed a method to route cells from the input node to the output nodes in a radix-2 distribution network only. *Law's* address cannot be used for routing between nodes in a network having an arbitrary topology, such as that in the claimed invention. In Fig. 4 of *Law*, according to the content of extra cell header 32, the cell 34 can only be routed from the input node 26(0,0) to one of the outputs 36_1 to 36_8. It is not possible to have an extra cell header using *Law's* method (see, column 6, line 54 to

column 8, line 2) to route a cell, for example, from output node 26(2,0) to input node 26(0,0), or from output node 26(2,0) to another output node such as 26(2,2).

On the other hand, the self-routing address in the claimed invention is contemplated for networks with arbitrary topologies. In networks with arbitrary topology, the networks have **non-identical nodes** with different numbers of input and output ports. The connections between nodes can be **arbitrarily arranged**. The role of each node varies with the packets in the network: For a given packet, the node at which the packet enters the network is the input node; the node at which the packet leaves the network is the output node; and any nodes the packet pass through from the input to the output is the transit node. For example, Fig. 4 and Fig. 12 of the present application show networks having nodes of 2, 3, and 4 input/output ports arbitrarily arranged in two non-tree structures, which differ from the radix-r networks disclosed in *Law*. The claimed invention is capable of routing, using the self-routing address scheme, between any pair of nodes as desired.

In view of the above, applicants respectfully submit that the present invention recited in claim 1 patentably distinguishes over *Law*.

Claims 2 - 7 depend from claim 1 and thus are believed to be allowable for at least the same reasons that claim 1 is allowable. Moreover, *Law* does not disclose the features recited in the dependant claims 2 - 7 including but not limited to that "at least one node in the network has more than one address" or "associating an output port in a node to an unused bit in a sub-field corresponding to the node in an address such that in response to a new address for directing a packet to a node in the network, the packet is forwarded via the output port."

Moreover, claims 9 - 19, which were rejected on similar grounds as claims 1 - 7 were, are also believed allowable for at least the same reasons that claims 1 - 7 are allowable.

Applicants have shown that claims 1 to 19 are patentable over the cited art and hereby respectfully request that the rejection of the pending claims be withdrawn. Each of the claims 1 to 19 in this application is believed to be in immediate condition for allowance and such action is earnestly solicited. In case the Examiner does not agree with all of applicants' remarks presented above, the Examiner is respectfully
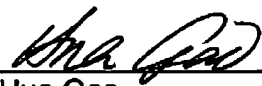
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requested to telephone the undersigned to discuss the remaining issues to expedite the ultimate allowance of this subject application.

No fee is believed to be due for this Preliminary Amendment. Should any fees be required, please charge such fees to Deposit Account No. 50-2215.

Respectfully submitted,

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